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EXAMINER	
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2622	31

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 08/941,459	Applicant(s) MORIKAWA, TAKESHI	
	Examiner Joseph R. Pokrzywa	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 February 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-6,13-16 and 23-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-6,13-16 and 23-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/21/02 has been entered.

Response to Amendment

2. Applicant's amendment received on 1/10/02 has been entered and made of record. Currently, **claims 4-6, 13-16, and 23-35** are pending.

Response to Arguments

3. Applicant's arguments with respect to **claims 4-6, 13-16, and 23-35** have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 4 through 6, 13, 14, 27 through 30, and 35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro *et al.* (U.S. Patent Number Re. 34,460, cited in the Office action dated 9/25/01) in view of Leung *et al.* (U.S. Patent Number 5,642,288).

Regarding ***claim 4***, Ishiguro discloses an image processing device (see Fig. 1) operable in a plurality of modes of operation (see Fig. 18, column 12, line 37 through column 13, line 25) comprising a memory (RAM) for storing *data* of a plurality of frames (column 18, line 64 through column 19, line 1), a controller (control circuit, seen in Fig. 19) for determining, for each frame, a state of a frame of the *data* stored in the memory (being the size of the sheet, column 18, line 64 through column 19, line 1, wherein the size is determined for S1 and Sx, which are stored in the RAM), an operation panel for selecting any of the plurality of modes of operation (see Figs. 16 through 18, column 12, line 37 through column 13, line 25, and column 14, lines 11 through 28), and a controller (control circuit, seen in Fig. 19) for comparing the state between at least two frames, as determined by the state decision controller (column 18, line 64 through column 19, line 7, wherein the sheet size S1 and Sx are compared), and for automatically prohibiting selecting an inoperable mode of operation of the plurality of modes of operation through the operation panel based on the result of the comparison (column 19, lines 2 through 7, and lines 39 through 44).

However, Ishiguro fails to particularly teach of storing *pixel density data* of a plurality of frames in the memory, and subsequently, determining, for each frame, a state of a frame of the *pixel density data* stored in the memory. Leung discloses an image processing device (system 1, seen in Fig. 1) comprising a memory for storing pixel density data of a plurality of frames (column 2, lines 26 through 37, and column 3, lines 39 through 65, and column 9, lines 7 through 16), a controller (processor 8) for determining, for each frame, a state of a frame of the pixel density data stored in the memory (column 3, line 66 through column 4, line 21, and column 10, lines 27 through 43), an operation panel (keyboard 4) for selecting any of the plurality of modes of operation (column 10, lines 19 through 22), and a controller (processor 8) for comparing the state between at least two frames, as determined by the state decision controller (column 3, line 39 through column 4, line 21, and column 9, lines 25 through 33). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Leung's teachings in the system of Ishiguro. Ishiguro made the design choice of comparing data of an image instead of pixel density data in the determination of whether to prohibit selecting an inoperable mode, but would easily be modified to include the teachings of Leung, thereby comparing pixel density data to determine a state of a frame in a plurality of frames, since the practice of comparing pixel density data to determine a specific processing is well known, and frequently used throughout the art, as recognized by Leung.

Regarding ***claim 5***, Ishiguro and Leung disclose the apparatus discussed above in claim 4, and Leung further teaches of the state decision controller determines a length of a frame of the image data (see steps 870 and 880 in Fig. 9, column 6, line 64 through column 7, line 13). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the

invention was made to include Leung's further teachings in the system of Ishiguro. Ishiguro made the design choice of comparing image data instead of pixel density data in the determination of whether to prohibit selecting an inoperable mode, but would easily be modified to include the teachings of Leung, thereby comparing pixel density data to determine a state of a frame in a plurality of frames, since the practice of comparing pixel density data to determine a specific processing is well known, and frequently used throughout the art, as recognized by Leung.

Regarding ***claim 6***, Ishiguro and Leung disclose the device discussed above in claim 4, and Ishiguro further teaches that the state decision controller determines a frame size of the frame of the *data* (column 18, line 64 through column 19, line 1). Further, Leung teaches of a controller that determines a frame size of the frame of the pixel density data (see steps 870 and 880 in Fig. 9, column 6, line 64 through column 7, line 13). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Leung's further teachings in the system of Ishiguro. Ishiguro made the design choice of comparing image data instead of pixel density data in the determination of whether to prohibit selecting an inoperable mode, but would easily be modified to include the teachings of Leung, thereby comparing pixel density data to determine a state of a frame in a plurality of frames, since the practice of comparing pixel density data to determine a specific processing is well known, and frequently used throughout the art, as recognized by Leung.

Regarding ***claim 13***, Ishiguro discloses an image forming apparatus (see Fig. 1) operable in a plurality of print modes (see Fig. 18, column 12, line 37 through column 13, line 25) comprising a memory (RAM) for storing *data* of a plurality of frames (column 18, line 64

through column 19, line 1), a printer for reading the *data* stored in the memory for each frame and for printing (column 20, lines 3 through 16), a controller (control circuit, seen in Fig. 19) for determining, for each frame, a state of a frame of the *data* stored in the memory (being the size of the sheet, column 18, line 64 through column 19, line 1, wherein the size is determined for S1 and Sx, which are stored in the RAM), an operation panel for selecting any of the plurality of print modes (see Figs. 16 through 18, column 12, line 37 through column 13, line 25, and column 14, lines 11 through 28), and a controller (control circuit, seen in Fig. 19) for comparing the state between at least two frames, as determined by the state decision controller (column 18, line 64 through column 19, line 7, wherein the sheet size S1 and Sx are compared), and for automatically prohibiting selection of an inoperable print mode of the plurality of print modes through the operation panel based on the result of the comparison (column 19, lines 2 through 7, and lines 39 through 44).

However, Ishiguro fails to particularly teach of storing *pixel density data* of a plurality of frames in the memory, and subsequently, reading the *pixel density data* stored in the memory, and determining, for each frame, a state of a frame of the *pixel density data* stored in the memory. Leung discloses an image processing device (system 1, seen in Fig. 1) comprising a memory for storing pixel density data of a plurality of frames (column 2, lines 26 through 37, and column 3, lines 39 through 65, and column 9, lines 7 through 16), a controller (processor 8) for determining, for each frame, a state of a frame of the pixel density data stored in the memory (column 3, line 66 through column 4, line 21, and column 10, lines 27 through 43), an operation panel (keyboard 4) for selecting any of the plurality of modes of operation (column 10, lines 19 through 22), and a controller (processor 8) for comparing the state between at least two frames,

as determined by the state decision controller (column 3, line 39 through column 4, line 21, and column 9, lines 25 through 33). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Leung's teachings in the system of Ishiguro. Ishiguro made the design choice of comparing image data instead of pixel density data in the determination of whether to prohibit selecting an inoperable print mode, but would easily be modified to include the teachings of Leung, thereby comparing pixel density data to determine a state of a frame in a plurality of frames, since the practice of comparing pixel density data to determine a specific processing is well known, and frequently used throughout the art, as recognized by Leung.

Regarding ***claim 14***, Ishiguro and Leung disclose the apparatus discussed above in claim 13, and Ishiguro further teaches of a finisher for stapling sheets printed by the printer (stapler 100 being part of sorter 40, see Figs. 1 and 2, column 7, lines 26 through 32, and column 11, lines 37 through 47), wherein the state decision controller determines whether the data stored in the memory includes data having a frame size different than a frame size of other data stored in the memory (column 18, line 64 through column 19, line 1, wherein the size is determined for S1 and Sx, which are stored in the RAM), and the selection prohibiting controller prohibits selecting a staple print mode through the operation panel when it is determined that the memory includes data having a frame size different than a frame size of other image data stored in the memory (column 18, line 64 through column 19, line 7, whereby the finishing mode is prohibited, thereby prohibiting the staple mode), with the staple print mode being provided so that the finisher provides a staple processing (column 19, lines 39 through 61). Because it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include

Leung's teachings in the system of Ishiguro, thereby comparing pixel density data, as discussed above in claim 13, it would further have been obvious to have the state decision controller determine whether the *pixel density data* stored in the memory includes *pixel density data* having a frame size different than a frame size of other *pixel density data* stored in the memory, and the selection prohibiting controller prohibits selecting a staple print mode through the operation panel when it is determined that the memory includes *pixel density data* having a frame size different than a frame size of other *pixel density data* stored in the memory, with the staple print mode being provided so that the finisher provides a staple processing. Ishiguro made the design choice of comparing image data instead of pixel density data in the determination of whether to prohibit selecting an inoperable print mode, but would easily be modified to include the teachings of Leung, thereby comparing pixel density data to determine a state of a frame in a plurality of frames, since the practice of comparing pixel density data to determine a specific processing is well known, and frequently used throughout the art, as recognized by Leung.

Regarding ***claim 27***, Ishiguro and Leung disclose the device discussed above in claim 4, and Ishiguro further teaches of a display for displaying an operating state of the image processing device (see Figs. 16 and 18, panels 120 and 150, wherein panel 120 includes indicator 125, column 12, lines 41 through 55), and a display controller, responsive to the selection prohibiting controller, for displaying on the display an operable mode of operation of the plurality of modes of operation (column 16, lines 11 through 16).

Regarding ***claim 28***, Ishiguro discloses an image processing device (see Fig. 1) operable in a plurality of modes of operation (see Fig. 18, column 12, line 37 through column 13, line 25) comprising a memory (RAM) for storing data of a plurality of frames (column 18, line 64

through column 19, line 1), a controller (control circuit, seen in Fig. 19) for determining, for each frame, a state of a frame of the data stored in the memory (being the size of the sheet, column 18, line 64 through column 19, line 1, wherein the size is determined for S1 and Sx, which are stored in the RAM), a controller (control circuit, seen in Fig. 19), responsive to the state decision controller, for comparing the state between at least two frames, as determined by the state decision controller (column 18, line 64 through column 19, line 7, wherein the sheet size S1 and Sx are compared), and for determining an inoperable mode of operation of the plurality of modes of operation based on the result of the comparison (column 19, lines 2 through 7, wherein the finishing mode is determined to be impossible, with the alarm flag F3 being set to "1" and the finishing mode flag being set to "1"), and an operation panel, responsive to the selection prohibiting controller, for selecting any of the plurality of modes of operation (see Figs. 16 through 18, column 12, line 37 through column 13, line 25, and column 14, lines 11 through 28), with the operation panel automatically prohibiting selecting the thus determined inoperable mode of operation (see Fig. 25c, steps S76 and S76a, column 14, lines 19 through 35, and column 16, lines 12 through 16).

However, Ishiguro fails to particularly teach of storing *pixel density data* of a plurality of frames in the memory, and subsequently, determining, for each frame, a state of a frame of the *pixel density data* stored in the memory. Leung discloses an image processing device (system 1, seen in Fig. 1) comprising a memory for storing pixel density data of a plurality of frames (column 2, lines 26 through 37, and column 3, lines 39 through 65, and column 9, lines 7 through 16), a controller (processor 8) for determining, for each frame, a state of a frame of the pixel density data stored in the memory (column 3, line 66 through column 4, line 21, and column 10,

lines 27 through 43), an operation panel (keyboard 4) for selecting any of the plurality of modes of operation (column 10, lines 19 through 22), and a controller (processor 8) for comparing the state between at least two frames, as determined by the state decision controller (column 3, line 39 through column 4, line 21, and column 9, lines 25 through 33). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Leung's teachings in the system of Ishiguro. Ishiguro made the design choice of comparing image data instead of pixel density data in the determination of whether to prohibit selecting an inoperable mode, but would easily be modified to include the teachings of Leung, thereby comparing pixel density data to determine a state of a frame in a plurality of frames, since the practice of comparing pixel density data to determine a specific processing is well known, and frequently used throughout the art, as recognized by Leung.

Regarding ***claim 29***, Ishiguro and Leung disclose the device discussed above in claim 28, and Ishiguro further teaches that the state of the frame of the image data determined by the state decision controller for each frame thereof is a frame size (column 18, line 64 through column 19, line 1). Further, Leung teaches that the state of the frame of the pixel density data determined by the state decision controller for each frame thereof is a frame size (see steps 870 and 880 in Fig. 9, column 6, line 64 through column 7, line 13). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Leung's further teachings in the system of Ishiguro. Ishiguro made the design choice of comparing image data instead of pixel density data in the determination of whether to prohibit selecting an inoperable mode, but would easily be modified to include the teachings of Leung, thereby comparing pixel density data to determine a state of a frame in a plurality of frames, since the practice of

comparing pixel density data to determine a specific processing is well known, and frequently used throughout the art, as recognized by Leung.

Regarding ***claim 30***, Ishiguro and Leung disclose the device discussed above in claim 30, and Ishiguro further teaches that the plurality of modes of operation include at least one of economy print mode, two-sided print mode, and staple print mode (column 19, lines 39 through 61, see Fig. 33, wherein the stapling processing is part of the finishing mode).

Regarding ***claim 35***, Ishiguro discloses an image formation apparatus comprising a memory (RAM) for storing data corresponding to a plurality of images (column 18, line 64 through column 19, line 1), a print portion for forming an image on a sheet (column 6, lines 49 through 61) from the data stored in the memory (column 14, lines 5 through 56, column 18, lines 64 through 66, and column 20, lines 3 through 16), a stapler (stapler 100, see Fig. 1) for stapling a plurality of printed sheets (column 11, lines 37 through 47), and a controller (control circuit, seen in Fig. 19) for which permits the stapler to operate when all of the plurality of printed sheets have images formed thereon from the data stored in the memory which are uniform in size and otherwise prohibiting the stapler from operating (column 18, line 64 through column 19, line 7, wherein the finishing mode is prohibited, with the finishing flag being reset to "0", thereby prohibiting the stapling operation from being performed).

However, Ishiguro fails to particularly teach of storing *pixel density data* of a plurality of frames in the memory, and subsequently, forming an image from the *pixel density data* stored in the memory, and determining, for each frame, a state of a frame of the *pixel density data* stored in the memory. Leung discloses an image processing device (system 1, seen in Fig. 1) comprising a memory for storing pixel density data of a plurality of frames (column 2, lines 26

through 37, and column 3, lines 39 through 65, and column 9, lines 7 through 16), a controller (processor 8) for determining, for each frame, a state of a frame of the pixel density data stored in the memory (column 3, line 66 through column 4, line 21, and column 10, lines 27 through 43), an operation panel (keyboard 4) for selecting any of the plurality of modes of operation (column 10, lines 19 through 22), and a controller (processor 8) for comparing the state between at least two frames, as determined by the state decision controller (column 3, line 39 through column 4, line 21, and column 9, lines 25 through 33). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Leung's teachings in the system of Ishiguro. Ishiguro made the design choice of comparing image data instead of pixel density data in the determination of whether to prohibit selecting an inoperable print mode, but would easily be modified to include the teachings of Leung, thereby comparing pixel density data to determine if the frames are uniform in size, since the practice of comparing pixel density data to determine a specific processing is well known, and frequently used throughout the art, as recognized by Leung.

6. **Claims 15 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiguro *et al.* (U.S. Patent Number Re. 34,460, cited in the Office action dated 9/25/01) in view of Leung *et al.* (U.S. Patent Number 5,642,288), and further in view of Matsuo *et al.* (U.S. Patent Number 4,912,518, cited in the Office action dated 9/25/01).

Regarding ***claim 15***, Ishiguro and Leung disclose the apparatus discussed above in claim 13, and Ishiguro further teaches that the state decision controller determines whether the image data stored in the memory all have the same frame size (column 18, line 64 through column 19,

line 7). Further, Leung teaches that the state decision controller determines whether the image data stored in the memory all have the same frame size (see steps 870 and 880 in Fig. 9, and steps 1210-1270 in Figs. 14 and 15, column 6, line 64 through column 7, line 13, and column 9, lines 7 through 33). However, Ishiguro and Leung fail to teach of the selection prohibiting controller prohibiting selecting a two-sided print mode through the operation panel when it is determined that the pixel density data stored in the memory do not all have a same frame size, the two-sided print mode being provided for printing the pixel density data of a plurality of frames on both sides of a sheet. Matsuo discloses an image forming apparatus (see Fig. 1) operable in a plurality of print modes (column 7, lines 53 through 68) comprising a printer for printing (column 6, lines 3 through 20), a controller for determining, for each frame, a state of a frame of the data (column 6, line 23 through column 7, line 24), an operation panel for selecting any of the plurality of print modes (see Fig. 6, column 15, lines 1 through 34), and a controller for comparing the state between at least two frames, as determined by the state decision controller (column 23, lines 34 through 45), and for automatically prohibiting selection of an inoperable print mode of the plurality of print modes through the operation panel based on the result of the comparison (column 21, lines 58 through 68). Further, Matsuo teaches that that the state decision controller determines whether the data all have the same frame size (column 21, lines 58 through 68) and the selection prohibiting controller prohibits selecting an two-side print mode (column 14, lines 24 through 38) through the operation panel when it is determined that the data do not all have a same frame size, the two-side print mode being provided for printing the image data of a plurality of frames on both sides of a sheet (column 3, lines 45 through 50, column 21, lines 58 through 68, and column 23, lines 32 through 45). Therefore, it would have

been obvious to a person of ordinary skill in the art at the time the invention was made to include Matsuo's teachings in Ishiguro and Leung's system. Ishiguro and Leung's system would easily be modified to include Matsuo's teachings, as the system's share cumulative features, being additive in nature.

Regarding ***claim 16***, Ishiguro and Leung disclose the apparatus discussed above in claim 13, and Ishiguro further teaches that the state decision controller determines whether the image data stored in the memory all have the same frame size (column 18, line 64 through column 19, line 7). Further, Leung teaches that the state decision controller determines whether the image data stored in the memory all have the same frame size (see steps 870 and 880 in Fig. 9, and steps 1210-1270 in Figs. 14 and 15, column 6, line 64 through column 7, line 13, and column 9, lines 7 through 33). However, Ishiguro and Leung fail to teach of the selection prohibiting controller prohibiting selecting an economy print mode through the operation panel when it is determined that the pixel density data stored in the memory do not all have a same frame size, the economy print mode being provided for printing the pixel density data of a plurality of frames on one same side of a sheet. Matsuo discloses an image forming apparatus (see Fig. 1) operable in a plurality of print modes (column 7, lines 53 through 68) comprising a printer for printing (column 6, lines 3 through 20), a controller for determining, for each frame, a state of a frame of the data (column 6, line 23 through column 7, line 24), an operation panel for selecting any of the plurality of print modes (see Fig. 6, column 15, lines 1 through 34), and a controller for comparing the state between at least two frames, as determined by the state decision controller (column 23, lines 34 through 45), and for automatically prohibiting selection of an inoperable print mode of the plurality of print modes through the operation panel based on the

result of the comparison (column 21, lines 58 through 68). Further, Matsuo teaches that that the state decision controller determines whether the data all have the same frame size (column 21, lines 58 through 68) and the selection prohibiting controller prohibits selecting an economy print mode (column 14, lines 24 through 38) through the operation panel when it is determined that the data do not all have a same frame size, the economy print mode being provided for printing the data of a plurality of frames on one same side of a sheet (column 21, lines 58 through 68, and column 23, lines 32 through 45). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Matsuo's teachings in Ishiguro and Leung's system. Ishiguro and Leung's system would easily be modified to include Matsuo's teachings, as the systems share cumulative features, being additive in nature.

7. **Claims 23 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Collard *et al.* (U.S. Patent Number 5,825,988, cited in the Office action dated 9/25/01) in view of Leung *et al.* (U.S. Patent Number 5,642,288), and further in view of Ishiguro *et al.* (U.S. Patent Number Re. 34,460, cited in the Office action dated 9/25/01).

Regarding ***claim 23***, Collard discloses an image forming apparatus operable in a plurality of print modes (see Figs. 6A and 6B, digital, 2-sided, and 1-sided modes), comprising a memory (central storage means 15, or memory disc 23) for storing a plurality of print jobs (column 5, lines 9 through 61), each print job containing image data of at least two frames (column 5, lines 20 through 29), a selector for selecting one of the plurality of print jobs stored in the memory (column 7, lines 18 through 27), a controller (control module 18) for determining, for each frame, a state of a frame of the image data contained in the print job selected by the print-job

selector (column 7, lines 28 through 37), a printer (printing unit 3) for printing the image data contained in the print job selected by the print-job selector (column 4, lines 15 through 60), an operation panel (panel 19) for selecting any of the plurality of print modes (column 6, lines 10 through 65), and a controller (control unit 18) for selecting a print mode of the plurality of print modes through the operation panel based on the thus determined state of the image data contained in the print job selected by the print-job selector (column 4, line 61 through column 5, line 8, and column 7, lines 33 through 63).

However, Collard fails to particularly teach if the image data stored in the memory is *pixel density data* of at least two frames, and subsequently, determining, for each frame, a state of a frame of the *pixel density data* stored in the memory, and printing the pixel density data. Leung discloses an image processing device (system 1, seen in Fig. 1) comprising a memory for storing pixel density data of a plurality of frames (column 2, lines 26 through 37, and column 3, lines 39 through 65, and column 9, lines 7 through 16), a controller (processor 8) for determining, for each frame, a state of a frame of the pixel density data stored in the memory (column 3, line 66 through column 4, line 21, and column 10, lines 27 through 43), an operation panel (keyboard 4) for selecting any of the plurality of modes of operation (column 10, lines 19 through 22), and a controller (processor 8) for comparing the state between at least two frames, as determined by the state decision controller (column 3, line 39 through column 4, line 21, and column 9, lines 25 through 33). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Leung's teachings in the system of Collard. Collard's system would easily be modified to include the teachings of Leung, as the systems share cumulative features, being additive in nature.

Continuing, Collard and Leung fail to teach of automatically prohibiting selecting an inoperable print mode based on the result of the comparison by the state decision controller. Ishiguro discloses an image forming apparatus (see Fig. 1) operable in a plurality of print modes (see Fig. 18, column 12, line 37 through column 13, line 25) comprising a memory (RAM) for storing data of a plurality of frames (column 18, line 64 through column 19, line 1), a printer for reading the data stored in the memory for each frame and for printing (column 20, lines 3 through 16), a controller (control circuit, seen in Fig. 19) for determining, for each frame, a state of a frame of the data stored in the memory (being the size of the sheet, column 18, line 64 through column 19, line 1, wherein the size is determined for S1 and Sx, which are stored in the RAM), an operation panel for selecting any of the plurality of print modes (see Figs. 16 through 18, column 12, line 37 through column 13, line 25, and column 14, lines 11 through 28), and a controller (control circuit, seen in Fig. 19) for comparing the state between at least two frames, as determined by the state decision controller (column 18, line 64 through column 19, line 7, wherein the sheet size S1 and Sx are compared), and for automatically prohibiting selection of an inoperable print mode of the plurality of print modes through the operation panel based on the result of the comparison (column 19, lines 2 through 7, and lines 39 through 44). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Ishiguro's teachings within Collard and Leung's system. Collard and Leung's system would easily be modified to include Ishiguro's teachings, since both systems share cumulative features, being additive in nature.

Regarding ***claim 24***, Collard, Leung, and Ishiguro disclose the apparatus discussed above in claim 23, wherein it would have been obvious to a person of ordinary skill in the art at the

time the invention was made to have included Leung's teachings, thereby storing pixel density data of at least two frames, and performing subsequent processing on the pixel density data. Ishiguro further teaches of a finisher for stapling sheets printed by the printer (stapler 100 being part of sorter 40, see Figs. 1 and 2, column 7, lines 26 through 32, and column 11, lines 37 through 47), wherein a print job selected contains image data of a plurality of frames and the state decision controller determines whether the selected print job contains image data of a plurality of frames and the state decision controller determines whether the print job selected contains image data having a frame size different than a frame size of other image data contained in the selected print job (column 18, line 64 through column 19, line 1, wherein the size is determined for S1 and Sx, which are stored in the RAM), and wherein the selection prohibiting controller prohibits selecting a staple print mode through the operation panel when it is determined that the selected print job contains image data having a frame size different than a frame size of other image data contained in the selected print job (see abstract, column 3, lines 16 through 19, and column 18, line 64 through column 19, line 7, whereby the finishing mode is prohibited, thereby prohibiting the staple mode), with the staple print mode being provided so that the finisher provides a staple processing (column 19, lines 39 through 61). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Ishiguro's further teachings within Collard and Leung's system. Collard and Leung's system would easily be modified to include Ishiguro's teachings, since the systems share cumulative features, being additive in nature.

8. **Claims 25 and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Collard *et al.* (U.S. Patent Number 5,825,988, cited in the Office action dated 9/25/01) in view of Leung *et al.* (U.S. Patent Number 5,642,288), in view of Ishiguro *et al.* (U.S. Patent Number Re. 34,460, cited in the Office action dated 9/25/01), and further in view of Matsuo *et al.* (U.S. Patent Number 4,912,518, cited in the Office action dated 9/25/01).

Regarding ***claim 25***, Collard, Leung, and Ishiguro disclose the apparatus discussed above in claim 23, and Leung teaches that the state decision controller determines whether the image data stored in the memory all have the same frame size (see steps 870 and 880 in Fig. 9, and steps 1210-1270 in Figs. 14 and 15, column 6, line 64 through column 7, line 13, and column 9, lines 7 through 33). Further, Ishiguro teaches that the state decision controller determines whether the image data contained in the selected image data all have the same frame size (column 18, line 64 through column 19, line 7). However, Collard, Leung, and Ishiguro fail to teach of the selection prohibiting controller prohibiting selecting an two-side print mode through the operation panel when it is determined that the image data contained in the selected print job do not all have a same frame size, the two-side print mode being provided for printing the image data of a plurality of frames on both sides of a sheet. Matsuo discloses an image forming apparatus (see Fig. 1) operable in a plurality of print modes (column 7, lines 53 through 68) comprising a printer for printing (column 6, lines 3 through 20), a controller for determining, for each frame, a state of a frame of the image data (column 6, line 23 through column 7, line 24), an operation panel for selecting any of the plurality of print modes (see Fig. 6, column 15, lines 1 through 34), and a controller for comparing the state between at least two frames, as determined by the state decision controller (column 23, lines 34 through 45), and for automatically

prohibiting selection of an inoperable print mode of the plurality of print modes through the operation panel based on the result of the comparison (column 21, lines 58 through 68). Further, Matsuo teaches that that the state decision controller determines whether the image data all have the same frame size (column 21, lines 58 through 68) and the selection prohibiting controller prohibits selecting a two-side print mode (column 14, lines 24 through 38) through the operation panel when it is determined that the image data do not all have a same frame size, the two-side print mode being provided for printing the image data of a plurality of frames on both sides of a sheet (column 3, lines 45 through 50, column 21, lines 58 through 68, and column 23, lines 32 through 45). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Matsuo's teachings in Collard, Leung, and Ishiguro's system. Collard, Leung, and Ishiguro's system would easily be modified to include Matsuo's teachings, as the system's share cumulative features, being additive in nature.

Regarding ***claim 26***, Collard, Leung, and Ishiguro disclose the apparatus discussed above in claim 23, and Leung teaches that the state decision controller determines whether the image data stored in the memory all have the same frame size (see steps 870 and 880 in Fig. 9, and steps 1210-1270 in Figs. 14 and 15, column 6, line 64 through column 7, line 13, and column 9, lines 7 through 33). Further, Ishiguro teaches that the state decision controller determines whether the image data contained in the selected image data all have the same frame size (column 18, line 64 through column 19, line 7). However, Collard, Leung, and Ishiguro fail to teach of the selection prohibiting controller prohibiting selecting an economy print mode through the operation panel when it is determined that the image data contained in the selected print job do not all have a same frame size, the economy print mode being provided for printing the image

data of a plurality of frames on one same side of a sheet. Matsuo discloses an image forming apparatus (see Fig. 1) operable in a plurality of print modes (column 7, lines 53 through 68) comprising a printer for printing (column 6, lines 3 through 20), a controller for determining, for each frame, a state of a frame of the image data (column 6, line 23 through column 7, line 24), an operation panel for selecting any of the plurality of print modes (see Fig. 6, column 15, lines 1 through 34), and a controller for comparing the state between at least two frames, as determined by the state decision controller (column 23, lines 34 through 45), and for automatically prohibiting selection of an inoperable print mode of the plurality of print modes through the operation panel based on the result of the comparison (column 21, lines 58 through 68). Further, Matsuo teaches that that the state decision controller determines whether the image data all have the same frame size (column 21, lines 58 through 68) and the selection prohibiting controller prohibits selecting an economy print mode (column 14, lines 24 through 38) through the operation panel when it is determined that the image data do not all have a same frame size, the economy print mode being provided for printing the image data of a plurality of frames on one same side of a sheet (column 21, lines 58 through 68, and column 23, lines 32 through 45). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Matsuo's teachings in Collard, Leung, and Ishiguro's system. Collard, Leung, and Ishiguro's system would easily be modified to include Matsuo's teachings, as the system's share cumulative features, being additive in nature.

9. **Claims 31 and 33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinada *et al.* (U.S. Patent Number 5,008,709, cited in the Office action dated 9/25/01) in view of Wang (U.S. Patent Number 5,987,171).

Regarding ***claim 31***, Shinada discloses an image formation apparatus (see Fig. 1) comprising a sensor (document sensor 37) for reading an image on an original (column 7, lines 8 through 48), a memory (buffers, column 226-228, seen in Fig. 13A, and column 14, line 64 through column 15, line 9) for storing data read by the sensor (column 18, lines 38 through 42, and column 40, lines 28 through 35), means (priority magnification select subroutine) for editing data from the data stored in the memory (column 34, lines 30 through 43), an image forming portion for using edited data to print an image (magnified documents, column 40, lines 35 through 56), a feeder (RDH 10) capable of feeding originals having different sizes to an image reading position (column 5, lines 4 through 12), means for reading (optics 4) mixed originals for reading a plurality of originals collectively set in the feeder (column 5, lines 22 through 39, and column 40, lines 40 through 51), means for determining a size of an image corresponding to the data of each image stored in the memory (column 39, line 56 through column 40, line 6), and means for controlling, responsive to the means for determining, which permits the means for editing to edit an image when all images corresponding to the plurality of originals are uniform in size (column 39, line 56 through column 40, line 68) and otherwise prohibiting the means for editing from editing an image (column 39, line 56 through column 40, line 68, and column 41, lines 24 through 40, wherein the means for editing, being the magnification routine, is prohibited on documents which are not uniform in size with the selected size).

However, Shinada fails to specifically teach of storing *pixel density data* read by the sensor, and subsequently, editing *pixel density data* from the *pixel density data* stored in the memory, using the edited *pixel density data* to print an image, and determining a size of an image corresponding to the *pixel density data* of each image stored in the memory. Wang discloses an image formation apparatus (see Fig. 4) comprising a sensor for reading an image on an original (column 4, lines 55 through 61), a memory (disk 411) for storing pixel density data read by the sensor (column 33 through 44), means for editing image data from pixel density data stored in the memory (column 13, line 46 through column 14, line 17), an image forming portion for using edited pixel density data to print an image (column 4, lines 61 and 62), and means for determining a size of an image corresponding to the pixel density data of each image stored in the memory (column 8, lines 20 through 67, and column 13, lines 6 through 28). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Wang's teachings in the system of Shinada. Shinada's system would easily be modified to include Wang's teachings, since the practice of reading pixel density data, editing pixel density data, printing pixel density data, and determining a size of pixel density data are well known practices within the art, as recognized by Wang.

Regarding ***claim 33***, Shinada discloses an image formation apparatus (see Fig. 1) comprising a sensor (document sensor 37) for reading an image on an original (column 7, lines 8 through 48), a memory (buffers, column 226-228, seen in Fig. 13A, and column 14, line 64 through column 15, line 9) for storing data read by the sensor (column 18, lines 38 through 42, and column 40, lines 28 through 35), an image forming portion for using edited data stored in the memory to print an image (magnified documents, column 40, lines 35 through 56), a stapler for

stapling a plurality of sheets each bearing a formed image thereon (stapler unit 150, column 11, lines 10 through 21), a feeder (RDH 10) capable of feeding originals having different sizes to an image reading position (column 5, lines 4 through 12), means for reading (optics 4) mixed originals for reading a plurality of originals collectively set in the feeder (column 5, lines 22 through 39, and column 40, lines 40 through 51), means for determining a size of an image corresponding to data of each image stored in the memory (column 39, line 56 through column 40, line 6), and means for controlling, responsive to the means for determining, which permits the stapler to operate when all images corresponding to the plurality of originals are uniform in size (column 40, lines 30 through 68) and otherwise prohibiting the stapler from operating (column 40, lines 30 through 68, and column 29, line 46 through column 32, line 17, wherein the stapler is prohibited from operating on documents which are not uniform in size with the selected size, until all of the documents are copied in one uniform size).

However, Shinada fails to specifically teach of storing *pixel density data* read by the sensor, and subsequently, using the edited *pixel density data* to print an image, and determining a size of an image corresponding to the *pixel density data* of each image stored in the memory. Wang discloses an image formation apparatus (see Fig. 4) comprising a sensor for reading an image on an original (column 4, lines 55 through 61), a memory (disk 411) for storing pixel density data read by the sensor (column 33 through 44), means for editing image data from pixel density data stored in the memory (column 13, line 46 through column 14, line 17), an image forming portion for using edited pixel density data to print an image (column 4, lines 61 and 62), and means for determining a size of an image corresponding to the pixel density data of each image stored in the memory (column 8, lines 20 through 67, and column 13, lines 6 through 28).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Wang's teachings in the system of Shinada. Shinada's system would easily be modified to include Wang's teachings, since the practice of reading pixel density data, editing pixel density data, printing pixel density data, and determining a size of pixel density data are well known practices within the art, as recognized by Wang.

10. **Claims 32 and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinada *et al.* (U.S. Patent Number 5,008,709, cited in the Office action dated 9/25/01) in view of Wang (U.S. Patent Number 5,987,171), and further in view of Yoshida *et al.* (U.S. Patent Number 5,930,006, cited in the Office action dated 9/25/01).

Regarding ***claim 32***, Shinada and Wang disclose the apparatus discussed above in claim 31, but fail to teach if the means for editing pixel density data edits an image in the manner suitable for providing two images for printing on a single side of a sheet. Yoshida discloses an image forming apparatus that includes a means for editing an image in the manner suitable for providing two images for printing on a single side of a sheet (column 10, lines 32 through 43, wherein N=2). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Yoshida's teachings in Shinada and Wang's system. Shinada and Wang's system would become more versatile with the addition of Yoshida's teachings, as a user would have added options for a desired output format.

Regarding ***claim 34***, Shinada discloses an image formation apparatus (see Fig. 1) comprising a memory (buffers, column 226-228, seen in Fig. 13A, and column 14, line 64 through column 15, line 9) for storing data corresponding to a plurality of images (column 18,

lines 38 through 42, and column 40, lines 28 through 35), means (priority magnification select subroutine) for editing the data stored in the memory (column 34, lines 30 through 43), and means for controlling, which permits the means for editing to operate when all the data stored in the memory are uniform in image size (column 39, line 56 through column 40, line 68) and otherwise prohibiting the means for editing from operating (column 39, line 56 through column 40, line 68, wherein the means for editing, being the magnification routine, is prohibited on documents which are not uniform in size with the selected size).

However, Shinada fails to specifically teach of storing *pixel density data*, and subsequently, editing the *pixel density data* stored in the memory, and determining a size of an image corresponding to the *pixel density data* of each image stored in the memory. Wang discloses an image formation apparatus (see Fig. 4) comprising reading an image on an original (column 4, lines 55 through 61), a memory (disk 411) for storing pixel density data (column 33 through 44), means for editing image data from pixel density data stored in the memory (column 13, line 46 through column 14, line 17), and means for determining a size of an image corresponding to the pixel density data of each image stored in the memory (column 8, lines 20 through 67, and column 13, lines 6 through 28). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Wang's teachings in the system of Shinada. Shinada's system would easily be modified to include Wang's teachings, since the practice of reading pixel density data, editing pixel density data, printing pixel density data, and determining a size of pixel density data are well known practices within the art, as recognized by Wang.

Continuing, Shinada and Wang fail to teach if the means for editing edits in a manner suitable for providing two images on a single side of a sheet. Yoshida discloses an image formation apparatus comprising a memory (multiport image memory 304 within memory 30, see Fig. 5) for storing image data corresponding to a plurality of images (column 6, lines 47 through 51, wherein two pages are stored, and column 7, lines 25 through 28), means for editing image data from image data stored in the memory in a manner suitable for providing two images on a single side of a sheet (column 10, lines 32 through 43, wherein N=2), and means for controlling, which permits the means for editing to operate and otherwise prohibiting the means for editing from operating (column 16, lines 17 through 55). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include Yoshida's teachings in Shinada and Wang's system. Shinada and Wang's system would become more versatile with the addition of Yoshida's teachings, as a user would have added options for a desired output format.

Citation of Pertinent Prior Art

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Hanyu *et al.* (U.S. Patent Number 5,579,450) discloses a system that compares the densities of three contiguous pixels.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joe Pokrzywa whose telephone number is (703) 305-0146. The examiner can normally be reached on Monday-Friday, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (703) 305-4712. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

J.R.P.

Joseph R. Pokrzywa
Examiner
Art Unit 2622

jrp
April 26, 2002

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